

EXTERNAL SIDE AIRBAG

BACKGROUND

[0001] Vehicles are typically equipped with airbags. In the event of an impact, inflators activate and provide inflation medium to the airbags, and the airbags pressurize and act as supplemental restraints for occupants during the impact. The airbags are located at various fixed positions in passenger cabins of vehicles. Vehicles typically include a driver airbag mounted in the steering wheel, a passenger airbag mounted in the top of the dash in a vehicle-forward direction from the front passenger seat, and side curtain airbags mounted in the roof rails above the doors.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] FIG. 1 is a perspective view of a vehicle including an external airbag system having an airbag in an uninflated position.

[0003] FIG. 2 is a side view of the vehicle including the external airbag system having the airbag in the inflated position.

[0004] FIG. 3 is a top view of the vehicle including the external airbag system having the airbag in the inflated position.

[0005] FIG. 4 is a top view of an object impacting the airbag in the inflated position.

[0006] FIG. 5 is a cross-sectional view of the airbag in the inflated position along line 4 in FIG. 2.

[0007] FIG. 6 is a block diagram of an inflation system for the airbag.

DETAILED DESCRIPTION

[0008] A vehicle includes a body includes two pillars spaced from each other. The body includes a rocker extending from one pillar to the other pillar. The vehicle further includes an airbag fixed to the rocker and inflatable to an inflated position. The airbag extends outboard of the rocker in the inflated position. The airbag includes a first chamber and a second chamber substantially fluidly separated from each other. The first chamber extends farther outboard of the rocker in the inflated position than the second chamber.

[0009] The first chamber may overlap one pillar in the inflated position.

[0010] The second chamber may be disposed along the body between the two pillars in the inflated position.

[0011] The second chamber may abut the first chamber.

[0012] The vehicle may include a cover fixed to the rocker and covering the airbag. The cover may include a tear seam and the airbag may extend through the tear seam of the cover in the inflated position.

[0013] The airbag may extend upwardly from the rocker in the inflated position.

[0014] The body may include a beltline spaced from the rocker and the airbag may include a top surface extending along the first chamber and the second chamber. The top surface may be disposed closer to the beltline than the rocker in the inflated position.

[0015] The first chamber may include a first impact surface and the second chamber may include a second impact surface. The second impact surface may extend generally along the body and the first impact surface may extend transverse to the second impact surface.

[0016] The vehicle may include an inflator in fluid communication with both the first chamber and the second chamber.

[0017] The vehicle may include a sensor and a computer in communication with the sensor. The computer may be programmed to actuate the inflator based on the sensor sensing a pre-impact.

[0018] The inflator may initiate inflation of the first chamber prior to the second chamber.

[0019] An external airbag system includes a rocker and an airbag fixed to the rocker and inflatable to an inflated position. The airbag extends outboard of the rocker in the inflated position. The airbag includes a first chamber and a second chamber substantially fluidly separated from the first chamber. The first chamber extends farther outboard of the rocker in the inflated position than the second chamber.

[0020] The external airbag system may include two pillars. The rocker may extend from one pillar to the other pillar, and the first chamber may overlap one pillar in the inflated position.

[0021] The second chamber may abut the first chamber.

[0022] The external airbag system may include a cover fixed to the rocker and covering the airbag. The cover may include a tear seam and the airbag may extend through the tear seam of the cover in the inflated position.

[0023] The airbag may extend upwardly from the rocker in the inflated position.

[0024] The first chamber may include a first impact surface and the second chamber may include a second impact surface. The second impact surface may extend along the cover and the first impact surface may extend transverse to the second impact surface.

[0025] The external airbag system may include an inflator in fluid communication with both the first chamber and the second chamber.

[0026] The external airbag system may include a sensor and a computer in communication with the sensor. The computer may be programmed to actuate the inflator based on the sensor sensing a pre-impact.

[0027] The inflator may initiate inflation of the first chamber prior to the second chamber.

[0028] With reference to the Figures, wherein like numerals indicate like parts throughout the several views, a vehicle 10 is generally shown. The vehicle 10 includes a body 12 having two pillars 14, 16 spaced from each other. The vehicle 10 includes an external airbag system 20 having a rocker 18 extending from one pillar 14 to the other pillar 16. The external airbag system 20 includes an airbag 22 fixed to the rocker 18 and inflatable to an inflated position. The airbag 22 extends outboard of the rocker 18 in the inflated position. The airbag 22 includes a first chamber 24 and a second chamber 26 substantially fluidly separated from each other. The first chamber 24 extends farther outboard of the rocker 18 in the inflated position than the second chamber 26.

[0029] Since the first chamber 24 extends farther outboard of the rocker 18 than the second chamber 26 in the inflated position, as shown in FIG. 3, the first chamber 24 may be impacted by an object prior to the object impacting the second chamber 26, which may allow the first chamber 24 to manage kinetic energy of the impact through rotation of the impacting object and/or rotation of the vehicle 10. Additionally, the first chamber 24 may be positioned, as discussed further below, such that during the impact the first